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ABSTRACT

A program of planned intervention to facilitate language growth in kindergarten children at Cheyenne Eagle Butte was conducted during the 1970-71 school year. The study sample consisted of the students in 2 kindergarten classes, one considered low and one considered high, as judged by family economic background, Headstart experience, and educational advantage. The low group was the experimental group, while a kindergarten class in another school and the high group were control groups. Two interns in the Teacher Corps Project, both Indians, administered tests to the students. The instruments used were the Peabody Picture Vocabulary Test and the Illinois Test of Psycholinguistic Abilities. The test results were analyzed and individual student profiles were formulated. The program of planned intervention was then implemented, building on the child's strengths while concomitantly remediating his deficits. The major conclusion was that the psycholinguistic method was significantly better at teaching the specified set of skills to the specified set of children and that the usefulness of this model of teaching is a framework for diagnosing and remedying educational deficits of Sioux Indian children. A case study of a child in the experimental group was also presented. (PS)

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AN EDUCATIONAL MODEL FOR PLANNED INTERVENTION IN LANGUAGE DEVELOPMENT

Rex Damron and Ken Engelhardt

June 1971

The most immediate goal of the elementary teacher is that of preparing the child to function well in grades 7 through 9, to engage effectively in adolescent learning in the high school, and to mature as an adult. In going about their tasks, teachers recognize--or should recognize--that the learning experience is managed predominantly through language.

Interns at Cheyenne Eagle Butte, a site of the Black Hills State College Teacher Corps Project, realized that one of the most crucial problems facing educators today is that of facilitating the language growth of children from the economically and socially marginal segments of our society. Further realizing that the Cheyenne Indian Reservation schools at Eagle Butte, South Dakota, were typical settings for language deprivation, they decided to focus the 1970-71 school year on "planned intervention" introduced during these children's malleable pre-school years.

The American Indian, one of the largest minority groups in the nation, has its own special linguistic problems. His language development is further hampered by dialectical characteristics which may render some word forms used in school vague or even incomprehensible to him. The Indian dialect spoken in the home inhibits language development, and since verbalization

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in English is a criterion for success in school, the child's lack of facility in comprehension and expression in this second language limits his academic progress. These initial linguistic deficiencies exert a retarding influence on school achievement and may result in an accumulation of failure experiences, maladaptive behavior, and lowered self-esteem.

The concerned interns sought more professional help, and the authors were chosen to direct their research and study program. The first step taken was to choose the instruments that would be most appropriate for measuring children in the general area of language ability.

After much discussion, the interns and authors felt that Indian children do not succeed in school because of their restricted linguistic system. Regardless of the origin of poor language development, remedial steps seemed to be necessary; before remedial steps could be taken, some measure of level of language functioning was needed. There are many ways to apprise language, but for this study, the following instruments were selected: The Peabody Picture Vocabulary Test (PPVT) and the Illinois Test of Psycholinguistic Abilities (ITPA).

The Peabody Picture Vocabulary Test (PPVT) Form B was used in the study. The PPVT yields a mental age and an IQ and was chosen because it is a relatively non-threatening instrument. Such an instrument could be very helpful in gaining rapport, as much praise can be provided and a child can experience some success before testing with a major instrument is begun. PPVT mental age is now accurately described as a vocabulary age, and according to Weschler (1958), vocabulary is the best predictor

of intelligence. The test is not a measure of total language functioning but will give some idea of the level at which words are understood by the child. It provides a partial guide to receptive language and permits the examiner to consider the probability that expressive language will not operate on a higher level.

The ITPA is an instrument used to determine language facility in subjects from 2.5 to 10.0 years of age. The Revised Edition (1968) is a diagnostic test of specific cognitive abilities, as well as a molar test of intelligence. It bears the same relationship to the field of communication and learning disorders that diagnostic reading tests bear to the field of reading. Its object is to delineate specific abilities and disabilities in children in order that remediation may be undertaken when necessary.

Plans for the study were presented to the Superintendent of Cheyenne Eagle Butte School System, Eagle Butte, S.D. Permission was given for the study to be conducted in the elementary school, where two kindergarten classes were in session. The kindergarten children had been previously grouped by the teachers and administrators into a "low" group and a "high" group; the criterion for selection was based on family economic background, whether they had been in Headstart, and educational advantage or disadvantage.

The "low" group had a myriad of problems; a diary kept by the cooperating teacher showed problems ranging from mother-based homes to complete abandonment of the children. None of the "low" group had been in the Headstart Program.

The Interns decided to select the "low" group to use as the

experimental group, the rationale being that these were the children needing the help most. A teacher variable did not seem to exist, as Eagle Butte employs two very capable kindergarten teachers.

Holy Rosary, a Parochial school using the Montessori approach, was contacted, and permission was received from the principal to test and use their kindergarten class as a second control group. Procedures for testing and use of data were the same as those used for the traditional group.

A meeting was held consisting of the authors, the interns, the two kindergarten teachers, and the principal. The plan was explained in detail to the two teachers. Effort was made to explain to the teachers that the study was to test hypotheses in innovative teaching techniques rather than individual teacher competencies. The teachers enthusiastically agreed to take part in the experiment. However, the control teacher did express some feelings of regrets because she felt, after hearing the plan, that her class could also progress from the course of study. We further explained that in order for the study to be successful, a control group was needed as well as the experimental group. She was somewhat satisfied in just being provided the data from her class to be used at her own discretion. She agreed to the idea with the provision that if the plan was successful, she would be included in the program the ensuing school year. Teacher Esther Stark and the "low" group was selected as the experimental group.

In the following meeting with the teachers, plans were made for testing of both kindergarten classes. Since this was a pilot

study in which the interns played an integral part, it was decided that the interns would do the testing and help the cooperating teacher with preparing classroom materials.

Two of the interns, Larry Mendoza and Faye Longbrake, were trained by the authors to administer the tests. Both interns were Indians and had always lived in the community. Training was aimed at achieving a standardized procedure in testing. First, the tests were thoroughly explained to the examiners, along with the explanation of the theoretical foundations of each test. Next, each examiner was given the tests that he would be administering. Examiners then tested each other and practiced administering the test to children. Finally, the examiners administered the tests to the present authors (both of whom are psychological examiners), followed by comments and suggestions. It was further possible to observe each examiner daily as he collected data for the actual study. Any irregularities were noted and an effort made to keep test administration as standardized as possible.

The interns administering the test computed the raw scores, and all raw score computations were checked to insure accuracy. The raw scores of each individual student were then computerized by the authors, and printouts with norms for each student on the twelve subtests of the ITPA were available. The pre-testing was finalized in late November. Upon receiving the test scores in December, the interns, the authors, and the cooperating teacher on a "no school" day (which was granted by the principal) proceeded to evaluate individual student profiles and then prepare materials to ameliorate their weaknesses. After researching and

classifying materials to get the experimental teaching started, the interns divided the class into workable groups. It was decided that the experimental teaching technique would start in January, following the Christmas recess.

Interns Mendoza and Longbrake were assigned to work with the small groups with individual problems from 9:30 to 10:00 a.m. and from 10:00 to 10:30 a.m. Other classwork planned followed closely with the diagnostic-prescriptive teaching concept.

The different approach presented some adjustments for the teachers, but most of the adjustments were viewed as being healthy educational growth. Some of the situations follow:

1. Children adjusting in middle of school year to a new situation in the classroom.
2. Interns, cooperating teacher, and aide were forced to work together in preparation of materials.
3. Physical space was limited.
4. A constant need creating varied materials for classroom use.
5. As children advanced in certain areas, work had to be upgraded to challenge them.
6. Class records kept on each child to see if they needed to repeat an activity or move up to the more advanced.

Concomitantly, Mrs. Stark listed the following advantages of the new approach:

1. Learning difficulties were pinpointed and the children could be given extra help in those areas.
2. The materials to help in various areas are prepared ahead of time and filed under subsets--ready to use.
3. Small group concentration helped the students get the right kind of work. No one wasted time repeating in area where they could already achieve.

4. If lessons are properly planned, an aide or paraprofessional could administer the lessons with the teacher becoming a facilitator.

5. The children generally liked working with new techniques, materials, etc. They also liked working with different instructors. Shy ones overcame their difficulties and visited freely with their teaching staff.

In devising the educational prescription materials, it was strongly recommended that the teachers build on the strengths of the child while concomitantly remediating the youngster's deficits. The purpose of such an approach was that a positive attitude was built in the youngster by the use of success-producing tasks. In addition, remediation procedures selected to correct revealed deficiencies should be of such a nature that the child will initially achieve positive growth which will promote a good self-image.

The following are suggested activities designed to foster learning based upon the subtest of visual sequential memory. (There are eleven other subtests in the ITPA, and this activity is presented as an example to illustrate the type of materials used in the study.)

Visual sequential memory, or <u>visual-motor sequencing</u>, refers to the ability to remember and reproduce a sequence of visual stimuli. If a child showed a deficit in visual sequential memory, teachers followed these guidelines to remediate the deficit.

1. Permit the child to use auditory cues.

2. Permit him to trace when possible.

3. Display a sample outline picture or geometric form. Remove it and have child draw it from memory. Compare with original and allow child to finish or correct his drawing.

4. Cut up a picture in various shapes and have child reproduce in same order. Start with three designs

and increase as child becomes proficient.

5. Present a series of letters or numbers on flash-cards and have child sequentially reproduce orally or in writing.

6. Cut up pictures for a shopping list of groceries and present child with verbal description and then have child sort the shopping list as presented by teacher.

7. Line up a series of objects, pictures, or toys on the table. Tell the child to look carefully at them. Then, while he closes his eyes, shift the order of the object. Call on a child to replace it in the correct order. Later, two or three objects can be shifted.

8. Classification criteria must be pointed out to the child, for example, shape, color, function, material, and size. Use only one criterion at a time. Keep the objects simple with very noticeable characteristics at first. This gives good practice both in visual memory and in organizational skill.

9. Select a picture with many familiar objects. Expose the picture to the child. Cover it and ask the child to tell as many things as he remembers seeing.

CASE STUDY SUBMITTED BY

TEACHER CORPS INTERNS

LARRY MENDOZA AND FAYE LONGBRAKE

Case study work-up concerning T.L. (not his real initials).

T.L.--Male, Indian, 5 years old, parents living, 5 brothers (2 older and 3 younger).

Pre-test Scores:	ITPA	PPVT	Language Age	Chronological Age
	131	88	4.2	5.1

T.L. has a speech impediment and is considered socially and mentally immature. Because of this, he has difficulty keeping up with other children and was placed in the lower kindergarten group. T.L. also exhibited some coordination difficulties.

When we first met T.L., he was already identified as a problem learner.

Due to the home situation, T.L. often came to school so tired that he could not stay awake during the school day.

His speech problem is fairly severe. He has considerable difficulty with the hard "c" and "k" sounds; most often he does not use these sounds at all. During the months we worked with T.L., there was moderate improvement in speech and he has been referred for corrective therapy concerning his speech.

T.L. was not considered to have the ability to learn, think, or reason in school.

His initial test scores, both ITPA and PPVT, show that he is a slow learner, but the ITPA score showed that T.L. was above

average in auditory reception and manual expression.

In order to develop confidence and a good self-concept in T.L., our initial remedial work concentrated on his strengths. The result was that T.L. had his first series of successful school experiences, and we felt his self-image improved.

T.L. and the other children were grouped according to ITPA results. The grouping was by subsets of the ITPA and a 3-point raw score spread.

Ex: Children with scores of 17, 18, and 19 on a subset formed a group. Children with scores of 20, 21, and 22 on the same subset formed another group, and so forth for each subset.

Every child participated in Mrs. Stark's large group instruction each day. Then groups were formed according to their scores. Four adults--Mrs. Stark, one teacher aide, and two interns--worked with the various groups.

T.L.'s Daily Class Schedule

9:00 - 9:45 Large group lesson for the day.

9:45 -10:15 Group play time.

10:15 -10:25 Worked with group on subset 2 - Visual Reception.
Ex: Identification of objects in pictures, magazines, etc.

10:25 -10:35 Worked with group on subset 3 - Auditory Association.
Ex: Present a series of words and ask which word does not belong to group (car, boat, hat, train).

10:35 -10:45 Worked with group on subset 4 - Visual Association.
Ex: Make sequence cards and have child arrange into logical order or picture puzzle activities.

10:45 -10:55 Worked with group on subset 5 - Verbal Expression.
Ex: Use objects of nature, household items, etc. as a stimulus and have child verbally express or describe objects (flowers, rocks, chair, TV).

10:55 -11:05 Worked with group on subset 7 - Grammatic Closure.
Ex: Present sets of pictures with one stimulus on one side and two or more stimuli of the same

type on the opposite side. Say, "Here is a car. Here are two ____." The missing word is supplied by the child.

11:05 -11:15 Worked with group on subset 8 - Visual Closure.
Ex: Using primary puzzles have child construct and describe. Retain one piece, have child reconstruct and describe missing part.

11:15 -11:25 Worked with group on subset 9 - Auditory Sequential Memory.
Ex: Give simple directions for a game and have child repeat. Letter and number games for children to repeat.

11:25 -11:35 Worked with group on subset 10 - Visual Sequential Memory.
Ex: Present a series of geometric shapes for a brief exposure and have child reproduce in same order.

11:35 - Lunch

The above schedule represents only one day, and we used similar schedules for each day of the week.

Since we (interns) could only be in the class half a day, we broke the schedule down to 10-minute modules so we could cover all the language development areas of the ITPA.

We made many of our own materials but also made use of commercial materials (Frostig, Fitzhugh Figure Ground, Kelp, Peabody, puzzles, etc.) which fit in with the subset remediation we were working on.

T.L.'s Post-Test Scores (Pre-test scores in parentheses)

ITPA	PPVT	Language Age	Chronological Age
187 (131)	100 (88)	5.9 (4.2)	5.8 (5.4)

This remediation project was implemented for approximately four months. The improvement in language skills shown in T.L.'s case is typical of the gains in the entire experimental kindergarten group.

Larry Mendoza and Faye Longbrake

Mrs. Stark further commented, "The interns did an outstanding job in researching and administering their findings. They used a wide variety of materials and approaches. All of the children were benefited by this program."

Pre-test and post-test results are shown in the following charts:

Mean Scores on ITPA for Experimental Group

	Pre-test Nov., 1970	Post-test May, 1971
Raw Score	181	242
Language Age	5-8	7-2

Mean I.Q. Score on PPVT for Experimental Group

Pre-test Nov., 1970	Post-test May, 1971
88	101

The comparison of data between the techniques of the three kingergarten groups was put to statistical test to determine the differences.

The major object of the analysis was to determine whether the psycholinguistic method was significantly better than the other two methods, in terms of the amount of improvement made by the groups taught by each method. The measures to be used to test this improvement are the ten tests which were designed to tap different aspects of the skills which were being taught.

One problem in assessing improvement by these ten tests is that it is possible for some children to improve in some tests but not others, while other children improve in a different group

of tests. If this is the case, not all the tests are measuring the same thing, and it is meaningless to add them together. Thus, only those tests which are similar may be added, and the hypothesis of improvement must be tested separately for each group of similar tests.

Factor analysis is designed to determine how many groupings there are in a set of tests, so it was used here to determine which tests it would be appropriate to add together. A principal axis factor analysis was performed using squared multiple correlations in the diagonal and rotated to an orthogonal solution. This solution yielded one factor, which showed that all ten tests were tapping just one dimension. Thus, while some measures were "better" than others (i.e. had higher factor loadings), they were all measuring the same thing. The pre-test and the post-test were factored separately and showed similar factor structures. (This is a good thing because if they had different factor structures, it would mean that they were measuring different things and could not be added or subtracted to find improvement scores.)

Since the factor analysis showed that all the tests measured basically the same things, it is appropriate to add them together. When a child's total for the pre-test is subtracted from his total for the post-test, a measure is formed of improvement. Mean improvement scores were found for each group, and a one-way analysis of variance was performed. This technique determines whether a given set of means has significant differences within the set. In this case, the results were significant at the $\angle .001$ level. This means that the differences among the three means

were large enough that they would have occurred by chance only one time in a thousand. Thus, one can be quite confident that the differences are real ones.

Mean Improvement Scores

Montessori	Traditional	Psycholinguistic
35.158	42.381	67.423

$F = 8.2722$ $df = 2/63$ $p < .001$

The final question is whether the group which differed was the psycholinguistic or one of the others. Tukey's test is designed to test which pairs of tests are significantly different, but the differences here are large enough that the test was not performed. It is clear that the psycholinguistic method differs from the other two but that they do not differ from each other.

Thus the conclusion may be made that the psycholinguistic method was significantly better at teaching the specified set of skills to the specified set of children.

The work of this innovative educational program by these two interns has resulted in the following impacts: first, the Head-start Director at Eagle Butte has requested that the interns be permitted to test, evaluate, and help the Headstart teachers set up a more viable program based on this diagnostic-prescriptive model; secondly, the Eagle Butte Board of Education has encouraged an expansion of the program into other elementary grades which would encompass other teachers within the school system; and thirdly, teachers in the Eagle Butte school system have requested permission to be involved in any future programs designed on this model.

In conclusion, the usefulness of this model of teaching is a framework for diagnosis and remediation of educational deficits of Sioux Indian children. The suggestive tests and remedial procedures are both tentative and suggestive (used here to illustrate a point of view). That view is that the answer that becomes increasingly clear is that to provide educational remediation requires a clear description of the language functions present with the child, the avenues open for learning, the environmental conditions within which the child can learn, the developmental level at which he can begin, and the specialized curriculum which provides the content of learning.

It is our hope that this study has offered some guidelines for remediation of the linguistic system of educationally deprived children. It must be based on appropriate and realistic goals and must utilize effective teaching methods so that the students' time may be spent as effectively as possible.